

GRAND TETON NATIONAL PARK SERVICE RESEARCH NEEDS 2017

HYDROLOGY, AIR QUALITY AND GEOLOGY

- Use of LiDAR for habitat characterization and change analysis, especially in alpine and subalpine areas
- Use of LiDAR for fire fuels modeling
- Use of LiDAR to identify geologic hazards
- Relating trends in glacier mass balance to downscaled regional and local climate data
- Compiling and analyzing local stream temperature data for change/trends, assessing implications of warming temps for water quality and aquatic species survival
- Effects of dam removal on snowmelt dominated streams: long term analysis for Spread Creek
- Change analysis techniques for assessing habitat change from aerial photography (NAIP imagery)
- Development of a water quality monitoring protocol for Huckleberry Hot Springs and Kelly Warm Spring



For questions about geologic and hydrologic studies, contact 307-739-3493

ECOLOGY, VEGETATION AND SOILS

- Predicting the spread of cheat grass in relation to climate change on a local scale in Grand Teton NP
- Soil food web study of Kelly hayfields to determine differences between native and agricultural soils
- Investigate effects of earlier plant flowering on pollinators and/or wildlife

For questions, contact ecologists Dan Reinhart at 307-739-3678 or Kelly McCloskey at 307 413-1285

FISH AND WILDLIFE

Broad themes of interest:

- Investigate climatic influences to aquatic and terrestrial habitats of fisheries and wildlife
- Evaluate effects of aquatic and terrestrial invasives on wildlife and their habitats
- Evaluate the effects of contaminants, pathogens, and disease on fisheries and wildlife
- Monitor and research threatened and endangered species

Specific study needs:



- Potential overlap in diet and habitat use of mountain goats and bighorn sheep in GTNP
- Seasonal movements and habitat use of sage grouse in Grand Teton NP
- Occurrence of lynx in and around Grand Teton NP
- Ecological and human factors assoc. w/ long-term decline of nesting great blue herons
- Distribution and genetics of Northern leatherside (*Lepidomeda copei*) in GTNP
- Strategies for controlling exotic aquatic species in GTNP
- Identify tributaries to Jackson Lake for cutthroat trout recruitment
- Investigate fish entrainment and water rights in selected irrigation ditches in the park
- Study distribution, abundance, and bat species occurrence; locate roosts, nurseries, and hibernacula

For questions about fish & wildlife, contact Dave Gustine, Branch Chief of Fish and Wildlife, 307-739-3485

SOUNDSCAPES AND WILDERNESS

- Assess how transportation noise influences visitor experiences in the park's frontcountry and wilderness
- Develop an acoustic map of natural and nonnatural sounds at popular destinations and hiking trails.

For questions, contact Shan Burson, bioacoustic ecologist, 307-739-3584

HISTORY AND PRESERVATION

- Research, identify, and propose a management strategy for cemeteries and burial sites in Grand Teton National Park
- Complete a history of the Civilian Conservation Corps' involvement in Grand Teton National Park, including road, trail, and building construction and clean-up work conducted around Jackson Lake
- Research and document the history and chronology of trail development in Grand Teton and the John D. Rockefeller Memorial Parkway and develop evaluation context
- Complete a history of the elk reduction program in Grand Teton National Park
- Conduct a condition assessment and stabilization plan for the Luther Taylor homestead.
- Conduct a comparative study to understand differences in performance and compatibility between traditional and modern synthetic log chinking and daubing materials
- Study and analyze energy efficiency in historic log buildings and propose compatible, sustainable retrofits to improve energy efficiency in occupied log buildings
- Use recent downscaled climate models and vulnerability assessments for the GYA to assess potential effects on historic structures and archaeological sites and recommend actions to protect re resources.



For questions, contact Shannon Dennison, Branch Chief of Cultural Resources, 307-739-3671

ARCHEOLOGY

- Conduct emergency salvage data recovery of a historic trash dump eroding into the Snake River
- Determine feasibility of geophysical remote sensing at an archaeological encampment site and implement technology-aided techniques to develop detailed site map that captures tipi rings and stone alignments
- Survey ice patch archaeology and write a report
- Research traditional and current ethnobotanical resources and practices in the park and parkway
- Using historical fire data, determine high probability areas for the presence of culturally modified trees and conduct reconnaissance surveys for them
- Create a field guide to the classification of common projectile points in Grand Teton National Park

For questions, contact Breelyn Van Fleet, archeologist, 307-739-3643



MUSEUM COLLECTIONS

- Conduct preliminary research on mountain climbing history in GTNP and conduct oral history interviews within members of the local climbing community
- Complete an initial context study of "imaging Grand Teton National Park"-- a history of painters, filmmakers, and artists

For questions, contact Bridgette Guild, museum curator, 307-739-3494

Many of these projects are ideal for a graduate student with supervision.